

# 1 SCOOTER

## TECHNICAL FIELD OF THE INVENTION

This invention pertains to the field of manually-powered vehicles, such as bicycles, scooters, and skateboards. This invention also pertains to health equipment, such as exercise bicycles.

## CROSS-REFERENCE TO RELATED APPLICATIONS

Not applicable.

## FEDERALLY SPONSORED RESEARCH AND DEVELOPMENT STATEMENT

This invention was not developed in conjunction with any Federally-sponsored contract.

## MICROFICHE APPENDIX

Not applicable.

## BACKGROUND OF THE INVENTION

Scooters and scooter-like manually-powered vehicles are well known within the art for efficient means for transportation. Most scooters are designed and manufactured primarily for recreational use by children, while some scooters are designed for use by adults. Scooters are propelled by the rider using a single stride with one leg, while the other leg and foot maintain contact with the rider platform.

Many scooters of the prior art employ small wheels at the front and/or rear ends of the scooters, such as the designs disclosed in U.S. design Pat. Nos. 300,756; 295,989; and 392,001. Scooters with small wheels are not particularly well suited for use by taller and/or heavier operators, such as adults of 5 to 6 feet in height and up to 250 pounds in weight. The smaller wheels are difficult to keep rolling at a steady speed over uneven surfaces. Further, the frames of many scooters are not designed to support the stresses incurred during use by heavier operators and during higher speed operation.

Typical scooters, like bicycles, are not convenient to store, and cannot be carried indoors for storage easily due to the large frame and handle bar dimensions necessary. The scooter disclosed in U.S. Pat. No. 5,183,129 to Powell, collapses, but the overall design requires significant mechanical complexity and weight, making it unsuitable for high speed use and long-term carrying.

The scooter disclosed in U.S. Pat. No. 5,470,089, to Whitson, et al, is suitable for adult use and discloses larger wheels. The Whitson scooter uses wheels of 2:1 to 3:1 ratio of wheel diameter to the length of the scooter frame. The Whitson scooter also uses a front wheel fork which is tilted at a 30 degree incline from vertical, which allows the scooter frame down rod to descend from the head tube at a nearly vertical angle, thus forming a nearly right angle with the rider platform.

However, the Whitson scooter is not suitable for taller operators and higher speed operation. As the scooter is operated at higher speeds, the rider's propulsion leg will swing a greater horizontal distance, reaching further forward at the beginning of the stride, and continuing further backward towards the end of the stride. Taller riders have longer legs, thus increasing the stride length. The Whitson scooter may pose a hazard to such operation when the front wheel and yoke are turned towards the propulsion leg, as the rider's

# 2

foot and/or leg may come in contact with the front wheel and front wheel spokes. This poses a potential injury hazard to both the rider and nearby persons

Further, the Whitson scooter's 30 degree front fork causes the front wheel to tilt significantly from a straight vertical orientation during turns, which also poses a potential for the rider to lose balance and wreck the scooter.

Therefore, there exists a need in the art for a scooter which is properly constructed to withstand the stresses and weight

- 10 for a full-size adult operator propelling the unit at a relatively high speed. There also exists a need in the art for a high-performance steering system design which maintains the front steering wheel in a nearly vertical position during high speed turns, to increase stability and maneuverability.
- 15 Further, there exists a need in the art for a scooter which presents no overall protrusions, including a turned wheel, which may come in contact with the rider's legs during normal operation, in order to enhance safety of operation.
- 20 Finally, there exists a need in the art for an enhanced scooter which can be collapsed, and whose design is simple and light weight to lend itself to low-cost manufacturing and long-term carrying in the collapsed position.

## SUMMARY OF THE INVENTION

The present invention, an improved scooter design, meets and exceeds the requirements and needs as set forth in the background of the invention through specific design features, construction techniques, and component materials.

25 The angles of the down tube, the head tube, and the rear fork are specifically designed to enhance the ergonomics of the scooter when being operated by taller adult riders, and when being operated at high speeds. The combination angles of the down tube and the head tube allow the front wheel fork to descend at a close-to-vertical angle, thus enhancing the handling and maneuvering of the scooter at high and low speeds by reducing the tilt angle of the front wheel during turns.

30 Choices of construction materials as well as construction techniques employed enhance the load rating of the scooter while simultaneously reducing the manufacturing cost and complexity.

35 Finally, several design features, such as the placement of the brakes, streamline the overall frame design and reduce protrusions from the frame. This allows for safer operation at higher speeds with longer rider stride lengths.

## BRIEF DESCRIPTION OF THE DRAWINGS

40 The figures presented herein when taken in conjunction with the disclosure form a complete description of the invention.

45 FIG. 1 presents a perspective view of the scooter, and FIG. 2 discloses a side view of the invention.

FIGS. 3a, 3b and 3c show an optional accessory bracket for mounting on the head tube of the scooter, allowing a basket or other accessory to be attached to the scooter.

## DETAILED DESCRIPTION OF THE INVENTION

The scooter is provided with a steerable front wheel, a rear wheel, and a frame therebetween. The steerable front wheel is controlled by a handle bar.

Turning to FIG. 1, the scooter (1) is comprised of a front wheel assembly (2), a rear wheel assembly (3), a frame between the front and rear wheel assemblies, and a generally